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(54) HIGH FREQUENCY ION SOURCE

ion source.

(57) Abstract:

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PURPOSE: To obtain a high frequency ion source which can supply electron without being accompanied by a sudden rise of gas pressure by preparing a sub-discharge chamber with higher gas pressure, as well as a main-discharge chamber.

CONSTITUTION: In this high frequency ion source, Xe gas is introduced into a sub-discharge chamber 10 in which pressure is higher than in a main-discharge chamber 7, from gas introducing system 5. Setting up the pressure in the sub-discharge chamber 10 to such a degree that initial ionization plasma can be generated, enables naturally ionized electrons to be accelerated in the peripheral direction by high frequency electric field induced with an induction coil 6 and to collide with Xe gas to generate the ionization plasma. The ionization plasma generated in the sub-discharge chamber 10 flows into the main-discharge chamber 7. Electrons in the ionization plasma flowing into the main-discharge chamber 7 collide with Xe gas to generate ionization plasma. Thus Xe^+ ions are induced/accelerated out of ionization plasma by electrodes 2, 3, and 4, and then released outside from the high frequency

